

## APPENDIX A

### ACRONYMS AND DEFINITIONS

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This appendix lists and defines the acronyms used in the *Baseline Characterization* document.

#### A

|      |  |
|------|--|
| ANSI | American National Standards Institute    |
| ASDD | Application Services Definition Document |
| ATM  | Asynchronous Transfer Mode               |

#### B

|      |   |
|------|---|
| BARD | Business Applications Requirements Document |
| bps  | Bits Per Second                             |

#### C

|         |  |
|---------|--|
| CASE    | Computer Aided Software Engineering                    |
| CDS     | Central Database System                                |
| CICS    | Customer Information Control System                    |
| COBOL   | Common Business Oriented Language                      |
| COE     | Common Operating Environment                           |
| COTS    | Commercial Off-the-Shelf                               |
| CPS     | Central Processing System                              |
| CSMA\CD | Carrier Sense Multiple Access with Collision Detection |
| CBO     | Congressional Budget Office                            |

#### D

|      |                               |
|------|-------------------------------|
| DBMS | Database Management System    |
| DEC  | Digital Equipment Corporation |
| DoD  | Department of Defense         |
| DOS  | Disk Operating System         |

#### E

|        |   |
|--------|---|
| EASI   | Easy Access for Students and Institutions |
| ED     | US Department of Education                |
| EDI    | Electronic Data Interchange               |
| E-Mail | Electronic Mail                           |

## **F**

|       |   |
|-------|---|
| FAFSA | Free Application for Federal Student Aid                |
| FFELP | Federal Family Education Loan Program                   |
| FISAP | Fiscal operations report and Application to Participate |
| FWS   | Federal Work Study                                      |
| FY    | Fiscal Year   |

## **G**

|     |                              |
|-----|------------------------------|
| GAO | Government Accounting Office |
| GB  | Gigabyte                     |
| GUI | Graphical User Interface     |

## **H**

|      |                           |
|------|---------------------------|
| HTML | Hypertext Markup Language |
| HP   | Hewlett Packard           |

## **I**

|       |  |
|-------|--|
| I/O   | Input and/or Output                            |
| ICASE | Integrated Computer Aided Software Engineering |
| IP    | Internet Protocol                              |
| IT    | Information Technology                         |
| IBM   | International Business Machines                |

## **K**

|      |                     |
|------|---------------------|
| Kbps | Kilobits Per Second |
|------|---------------------|

## **L**

|      |                             |
|------|-----------------------------|
| LAN  | Local Area Network          |
| LCS  | Loan Consolidation System   |
| LDM  | Logical data Model          |
| LDMD | Logical Data Model Document |
| LOS  | Loan Origination System     |
| LSS  | Loan Servicing Systems      |

## **M**

|      |                              |
|------|------------------------------|
| MB   | Megabyte                     |
| Mbps | Megabits Per Second          |
| MDE  | Multiple Data Entry (System) |
| MVS  | Multiple Virtual Storage     |

## **N**

|       |                                   |
|-------|-----------------------------------|
| NFS   | Network File System               |
| NSLDS | National Student Loan Data System |
| NT    | New Technology                    |

## **O**

|      |                                   |
|------|-----------------------------------|
| OCR  | Optical Character Recognition     |
| OCFO |                                   |
| ODBC | Open Database Connectivity        |
| OLAP | Online Analytical Processing      |
| OLTP | On-Line Transaction Processing    |
| OMB  | Office of Management and Budget   |
| OPE  | Office of Postsecondary Education |
| OS   | Operating System                  |

## **P**

|        |  |
|--------|--|
| PC     | Personal Computer                              |
| PEPS   | Postsecondary Education Participants System    |
| PL/SQL | Programming Language/Structured Query Language |
| POSIX  | Portable Operating Systems Interface           |
| PSS    | Program System Services                        |

## **R**

|       |  |
|-------|--|
| RAID  | Redundant Array of Inexpensive Devices |
| RDA   | Remote Data Access                     |
| RDBMS | Relational Database Management System  |
| RFMS  | Recipient Financial Management System  |
| RISC  | Reduced Instruction Set Computing      |

## **S**

|      |                                      |
|------|--------------------------------------|
| SFA  | Student Financial Assistance         |
| SFAP | Student Financial Assistance Program |
| SNMP | Simple Network Management Protocol   |
| SQL  | Standard Query Language              |

## **T**

|        |   |
|--------|---|
| TAFIM  | Technical Architecture Framework For Information Management |
| TCP    | Transmission Control Protocol                               |
| TCP/IP | Transmission Control Protocol/Internet Protocol             |
| TP     | Transaction Processing                                      |
| TRM    | Technical Reference Model                                   |

## **U**

|    |               |
|----|---------------|
| US | United States |
| UX | Unix          |

## **V**

|     |                           |
|-----|---------------------------|
| VAN | Value Added Network       |
| VAX | Virtual Address Extension |

## **W**

|     |                   |
|-----|-------------------|
| WAN | Wide Area Network |
| WWW | World Wide Web    |

## APPENDIX B

### GLOSSARY

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This appendix lists and defines selected terms and provides additional information on selected acronyms used in the *Baseline Characterization* document.

| <b><u>Term or Acronym</u></b>            | <b><u>Definition</u></b>  |
|--|---|
| <b>Architecture Services/ Components</b> | The major classes (and sub-classes) of functionality provided by a computer system.   |
| <b>ATM</b>                               | Short for asynchronous transfer mode, a method of designing data packets that's particularly suited to sending video and audio information as well as text. Besides offering very high speed, ATM is attracting attention because it is favored by phone companies, cable operators and corporate computer users alike, which may make for easier networking between offices and homes. |
| <b>Bandwidth</b>                         | A measure of how fast a network can move information, usually measured in thousands or millions of bits, or units of data, per second.  |
| <b>Business Application</b>              | An operation that fulfills some specific business function.   |
| <b>Client</b>                            | A client is usually a PC that communicates over a network both with its peers, other clients, and with a larger computer, called a server, which typically stores data that many workers need to use. The client has just one user, the server many.  |
| <b>Client-Server</b>                     | The use of combinations of large and small computers to satisfy large system requirements using smaller components.   |
| <b>Communications Server</b>             | A hardware and software device that allows devices such as terminals, host computers, or printers to access a network without having to implement the communications protocol in the device itself. The communications server communicates with the device using standard protocols built into the device.  |
| <b>Connection</b>                        | A communications path between two devices that allows the exchange of information. Other terms used to refer to a connection are session or circuit.  |
| <b>Distributed Computing</b>             | Another name for the type of computing that networks allow. With combinations of PCs and servers, an organization's data and applications software may be spread among different machines.  |
| <b>Enterprise Architecture</b>           | A high-level description and drawing representing an information system design for an organization or enterprise  |

| <b><u>Term or Acronym</u></b> | <b><u>Definition</u></b>  |
|-------------------------------|---|
| <b>Ethernet</b>               | A local area network that utilizes baseband signaling at 10 Mbps. The development of the Ethernet specification was a joint effort by Xerox, DEC and Intel and is the predominant local area network standard. The most common sort of network used in corporations. Its top speed is 10 million bits a second.   |
| <b>Fast-Ethernet</b>          | A revision of Ethernet which allows data to be transmitted at 10 times the speed of Ethernet – 100Mbps.   |
| <b>Firewall</b>               | One way to keep unauthorized persons out of a network. Some networking devices can limit access to sensitive parts of a network. For example, a company might authorize access to its salary records only to a computer in a particular location that gives a secret password. But any PC user might be able to send e-mail to the personnel department requesting information. |
| <b>Gateway</b>                | How a user or another system can get access to a network. One of the most common usage's for the term is an on-line service company that gives customers access to the Internet. Inside a company, the term usually refers to specialized hardware that connects two different types of systems, such as a mainframe to a local-area network.                                   |
| <b>Gigabit Network</b>        | A network that operates at a billion bits a second -- 100 times Ethernet's speed.   |
| <b>Internet</b>               | The interconnection of thousands of separate networks using a common terminology. Developed by the Pentagon, the Internet first linked government agencies and colleges. Now the Internet also connects thousands of companies and millions of individuals who subscribe to on-line services; they can use it to exchange messages or data files.                               |
| <b>ISDN</b>                   | An interim step to take phone companies into the digital age. Integrated Services Digital Network is a technology that lets both voice and data flow over a standard phone line to a home or office. It runs six times faster than most PCs can communicate over a modem, though less than 1/100th the speed of Ethernet.   |
| <b>ISO Model</b>              | International Standards Organization (ISO) developed Reference Model for Open Systems Interconnection, which divides a complex set of communications functions into self-contained modules.   |
| <b>LAN</b>                    | A Local Area Network (LAN) is a communications network that provides high-speed data transmission over a small geographic area. LAN also refers to a group of computers that are connected by cable and share data, software and storage devices. LANs are needed to practice client-server computing.  |
| <b>Network Management</b>     | The overseeing and maintaining of a network. The duties performed by a system or network manager using a network management system include  |

| <b><u>Term or Acronym</u></b> | <b><u>Definition</u></b>   |
|-------------------------------|--|
|                               | installing and configuring the network, maintaining an operation log, monitoring network performance, and statistics.  |
| <b>Network</b>                | A system of computers and other hardware and software that is connected and allows users to transmit data and messages.  |
| <b>Network Topology</b>       | The geography of a network.  |
| <b>Organization</b>           | An organization may be a school, government agency, funding source, outsource, institution, standards committee, or ED itself.   |
| <b>Protocol</b>               | A strictly defined procedure and message format that allows two or more systems to communicate over a physical transmission medium. Due to the complexity of communications between systems and the need for different communications requirements, protocols are divided into layers. Each layer of a protocol performs a specific function, such as routing, end-to-end reliability, and connection. |
| <b>Service</b>                | A method for making systems resources available to users, electronic or human, in a consistent manner.   |
| <b>Standards</b>              | A standard is a well-defined, and typically published, definition for the method of satisfying some aspect of a computer system. Standards may be endorsed and/or published by one or more accredited standards committees, or they may be so widely used that they have become de facto industry standards.   |
| <b>T-1 Carrier</b>            | A digital transmission system developed by AT&T that sends information at 1.544 megabits per second. T-1 links can transmit voice or data.   |
| <b>TCP/IP</b>                 | Transmission Control Protocol/Internet Protocol. A set of de facto networking standards commonly used over Ethernet or X.25 networks. It was originally developed by the U.S. Government and is now supported by many equipment manufacturers. It defines high-level protocols such as Telnet (terminal connection), FTP (file transfer), and SMTP (electronic mail).                                  |
| <b>WAN</b>                    | A Wide Area Network is data communications network designed to serve an area of hundreds or thousands of miles. A WAN can be public or private.  |
| <b>X.25</b>                   | An ITU (formerly CCITT) standard that defines the standard communications protocol by which mainframes access a public or private packet switching network. These networks are often referred to as X.25 networks.   |

## APPENDIX C

### COST DERIVATION APPROACH

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This appendix describes the approach taken in deriving the cost and headcount figures presented in Sections 2. The function templates in Section 2.0 include a cost estimate for each function and also an estimate of the FTE ED and contractor headcounts employed on each function. The following steps describe the way in which current system contract totals were broken out into these two sets of figures.

#### **Step 1: Determine percentage of each current system devoted to supporting each SFAP business function**

Within the *Project EASI/ED CBA*, the Project EASI/ED business requirements were grouped into 22 functional areas. As part of the process of assigning current SFAP system costs to these functional areas, an estimate was made of the percentage of each current SFAP system that is devoted to supporting each functional area. These estimates are documented in Appendix H of the *Project EASI/ED CBA*, in the last section of each current system's cost explanation.

To translate these estimates into proportions for the SFAP business functions, each of the *CBA* functional areas was mapped to the major SFAP business functions defined in Section 2. This mapping is shown in Table C-1 below.

| SFAP Business Function                                       | CBA Functional Area                               | Percentage of CBA Functional Area Assigned SFAP Business Function |
|--|---|---|
| <b>1. FISAP Processing</b>                                   |   |   |
|  | 19 School Eligibility & Data Maintenance          | 100%  |
| <b>2. Award Processing</b>                                   |   |   |
|  | 7. Drawdown School Disbursement Authorization     | 50%   |
|  | 12. State Authorization Management                | 100%  |
| <b>3. Waiver Tracking</b>                                    |   |   |
|  | 17. Repayment Maintenance                         | 100%  |
| <b>4. Application Processing &amp; Management</b>            |   |   |
|  | 2. Interactive Application Processing and Renewal | 100%  |
| <b>5. School and State Payment Management and Processing</b> |   |   |
|  | 7. Drawdown School Disbursement Authorization     | 50%   |
|  | 9. Disseminate School Disbursement Information    | 100%  |
| <b>6. Debt Management &amp; Collections</b>                  |   |   |
|  | 18. Defaulted Debt Collections                    | 100%  |



| SFAP Business Function   | CBA Functional Area                              | Percentage of CBA Functional Area Assigned SFAP Business Function |
|--|--|---|
| <b>7. Lender and Guaranty Agency Processing</b>                        |  |   |
|  | 11. Funds Source Disbursement                    | 100%  |
| <b>8. Consolidation Processing</b>                                     |  |   |
|  | 13. Consolidation Processing                     | 100%  |
| <b>9. Loan Origination Management</b>                                  |  |   |
|  | 5. Common Aid Origination                        | 100%  |
| <b>10. Customer Service</b>  |  |   |
|  | 16. Customer Service Management                  | 100%  |
| <b>11. Loan Servicing</b>  |  |   |
|  | 15. Repayment Option Modeling and Selection      | 100%  |
|  | 17. Repayment Maintenance                        | 50%   |
| <b>12. Student Status Confirmation Reporting</b>                       |  |   |
|  | 14. Enrollment Tracking and Reporting            | 100%  |
| <b>13. School, GA, Lender and Servicer Default Information Support</b> |  |   |
|  | 19. School Eligibility and Data Maintenance      | 50%   |
|  | 20. Guarantor & Lender Information Maintenance   | 50%   |
| <b>14. School Eligibility Data Management</b>                          |  |   |
|  | 19. School Eligibility and Data Management       | 50%   |
| <b>15. Guaranty Agency, Lender, Servicer Eligibility Data Support</b>  |  |   |
|  | 20. Guarantor and Lender Information Maintenance | 50%   |
| <b>16. System Billing and Invoice Management</b>                       |  |   |
|  | No Direct Relationships                          |   |
| <b>17. Accounting and Financial Management</b>                         |  |   |
|  | 10. Perform Drawdown Reconciliation              | 100%  |
|  | 22. Integrated Accounting Management             | 100%  |
| <b>18. Borrower Repayment Processing</b>                               |  |   |
|  | 17. Repayment Maintenance                        | 50%   |

**Figure C-1. SFAP Function to CBA Functional Area Mapping**

The percentage of each current system devoted to supporting each SFAP business function was calculated by multiplying the current system percentage estimates in Appendix H of the *CBA* by the appropriate figures in Table C-1.

For example, the percentage of LSS that is devoted to function 11, Loan Servicing would be estimated as follows:

1. Function 11, Loan Servicing is listed in Table C-1 as mapping to 100% of the Repayment Option Modeling and Selection and 50% of the Repayment Maintenance functional areas from the *CBA*.
2. Page H-67 in the *CBA* estimates that 10% of the functionality of LSS is devoted to Repayment Option Modeling and Selection and that 45% of LSS is devoted to Repayment Maintenance.
3. The percentage of LSS devoted to Loan Servicing is therefore calculated as 10% plus (50% of 45%), which is approximately 33%.

In addition to the above steps, the following assumptions were made:

- Some current systems were mapped in the *CBA* to a Project EASI/ED “vision” functional area that has no counterpart in the current world. Where this occurred, the proportion of that system mapped to the “vision” functional area was divided equally among all other *CBA* functional areas to which that system was mapped.
- To properly reflect CBS processing in the context of current system functions, the 50% assigned to *CBA* function area 19, School Eligibility & Data Maintenance, is directly assigned to SFAP business function 1, FISAP Processing. Also, the 5% of CBS allocated in the *CBA* to functional area 17, Repayment Maintenance, was shifted to SFAP business function 3, Award Tracking.
- TIVWAN is proportioned equally across all applicable *CBA* functional areas instead of 100% to Info Sharing

As a final step in the estimation process, comments from ED management on the resulting percentages were taken into account, and where appropriate the estimates derived from *CBA* figures were overridden. Function 19, Program Monitoring, was created as a result of these comments.

By applying the above approach for each current system and SFAP business function, Table C-2 was created.

## **Step 2: Estimate current system cost figures for each business function**

The FY98 budget estimates received from ED for each current system were multiplied by the percentages listed in Table C-2. This gave a figure for each current system for each SFAP business function. By totaling across all current system, an FY98 cost estimate for each business function could be calculated. These cost estimates are presented in Tables 2-1 to 2-19.

|          | 1              | 2              | 3               | 4             | 5  | 6                       | 7                       | 8              | 9            | 10            | 11           | 12                                  | 13  | 14                               | 15   | 16                                      | 17                              | 18                         | 19                         |
|----------|----------------|----------------|-----------------|---------------|--|-------------------------|-------------------------|----------------|--------------|---------------|--------------|-------------------------------------|---|----------------------------------|--|---|---------------------------------|----------------------------|----------------------------|
| Contract | FISAP<br>Proc. | Award<br>Proc. | Waiver<br>Track | Appl.<br>Proc | School &<br>State<br>Payment<br>Proc. &<br>Mgmnt | Debt<br>Mgmnt<br>& Coll | Lender<br>& GA<br>Proc. | Consol<br>Proc | Loan<br>Orig | Cust.<br>Serv | Loan<br>Serv | Student<br>Status<br>Confirm<br>Rep | School, GA,<br>Lender &<br>Servicer<br>Default Info<br>Supp | School<br>Elig.<br>Data<br>Mgmnt | GA,<br>Lender,<br>Servicer<br>Elig. Data<br>Supp | System<br>Billing &<br>Invoice<br>Mgmnt | Accting &<br>Financial<br>Mgmnt | Borrower<br>Repay<br>Proc. | Program<br>Monitor-<br>ing |
| CBS      | 14%            | 13%            | 5%              |               | 12%  | 3%                      |                         |                |              | 5%            |              |                                     | 7%  | 7%                               |  |   | 25%                             |                            | 10%                        |
| CDS      |                | 4%             |                 |               | 10%  | 10%                     |                         | 10%            |              | 10%           | 15%          |                                     |   |                                  |  |   | 25%                             | 5%                         | 10%                        |
| CPS      |                |                |                 | 81%           |  |                         |                         |                | 4%           | 5%            |              |                                     |   |                                  |  |   |                                 |                            | 10%                        |
| FFEL     |                |                |                 |               | 3%   | 32%                     | 13%                     |                |              | 10%           | 9%           |                                     |   |                                  |  |   | 14%                             | 9%                         | 10%                        |
| MDE      |                |                |                 | 100%          |  |                         |                         |                |              |               |              |                                     |   |                                  |  |   |                                 |                            | 0%                         |
| LCS      |                |                |                 |               |  |                         |                         | 63%            | 5%           | 14%           |              |                                     |   |                                  |  |   | 9%                              |                            | 10%                        |
| LOS      |                | 12%            |                 |               | 13%  |                         |                         |                | 37%          | 18%           |              |                                     |   |                                  |  |   | 11%                             |                            | 10%                        |
| LSS      |                |                |                 |               |  | 9%                      |                         | 4%             |              | 18%           | 32%          | 4%                                  |   |                                  |  |   | 4%                              | 21%                        | 10%                        |
| NSLDS    |                |                |                 | 9%            |  |                         |                         |                |              |               |              | 13%                                 | 9%  | 4%                               | 4%   |   |                                 |                            | 60%                        |
| PEPS     |                |                |                 |               |  |                         |                         |                |              |               |              |                                     | 20%   | 10%                              | 10%  |   |                                 |                            | 60%                        |
| PGRFMS   |                | 15%            |                 |               | 15%  |                         |                         |                |              | 4%            |              | 10%                                 |   |                                  |  |   | 46%                             |                            | 10%                        |
| TIVWAN   | 3%             | 3%             | 3%              | 20%           | 3%   | 3%                      | 3%                      | 3%             | 19%          | 3%            | 3%           | 3%                                  | 3%  | 3%                               | 3%   | 3%                                      | 13%                             | 3%                         | 3%                         |

**Figure C-2. Baseline System to Function Cost Proportions**

### **Step 3: Estimate current system headcount figures for each business function**

The current system percentages presented in Table C-2 were also used to derive headcount figures for each SFAP business function. The government headcount figures were based upon FY98 numbers provided by ED, and the contractor headcounts were based upon FY97 numbers provided by contractors in October 1997. Contractor headcount data was not received for every current system.

In addition to the percentages in Table C-2, the following assumptions were made:

- The 282 CDS/LSS contractor personnel were divided up 1/4 to CDS, 3/4 to LSS. This was in the same approximate proportion to their combined budgets. This number did not include 450 LSS customer service personnel.
- LCS budget and Government. headcount numbers were derived from the LOS numbers provided by multiplying LOS numbers by the proportion of (LCS FY97 budgeted \$/(LCS + LOS FY97 Budget \$). The same is true for the LOS FY98 budget numbers.
- 90 customer service personnel were allocated to LCS, and 117 were allocated to LOS based on comments received from ED management.

## APPENDIX D

### CURRENT SYSTEM SUMMARY EVALUATION

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This appendix describes the methodology used to develop a summary questionnaire for evaluating each of the current SFAP systems. The tables following the methodology subsection provide the ratings assigned within each assessment category for each system. Also a brief justification for the ratings is provided after each system table.

#### Methodology

The TAFIM defines an approach and criteria for performing the assessment of current systems presented in the summary section. The *Baseline Characterization* followed the general pattern presented in the TAFIM and outlined below.

1. Develop summary questionnaires based on TAFIM recommended criteria, sub-criteria and rating scales.
2. Assess each SFAP system based on the questionnaires developed in step 1. Analysis was based on the information presented in Sections 1 thru 6, on current system documentation, and on input from ED staff.
3. Determine an appropriate scoring methodology and score the systems based on information provided in step 2.
4. Develop templates based on the TAFIM criteria and establish proper quadrants for rating systems once plotted.
5. Plot the systems in the various templates based on scores developed in step 3.
6. Assess current systems based on the position of current system scores in the templates.

Each step in the above methodology is described below.

#### Step 1.

Summary questionnaires shown in Appendix D were developed using criteria extracted from the TAFIM's baseline assessment guidelines. The following three major criteria categories were taken directly from the TAFIM:

- Technical Quality
- Technology Evolution
- Strategic Value

The only deviation from TAFIM'S approach was to not induce User Satisfaction criterion. This criterion requires in-depth user satisfaction surveys that couldn't be accomplished within scope of the project.

All three categories are defined in the summary questionnaire. An additional TAFIM criterion, User Satisfaction, was not considered in this analysis.

The major criteria categories consisted of additional sub-criteria to more accurately assess the systems. Sub-criteria definitions are also included in the summary questionnaire. The sub-criteria for each major category are as follows:

- Technical Quality
  - Robustness
  - Maintainability
  - Enhancements
- Technology Evolution
  - Systems Positioning
  - Technology Advances
  - Architecture Principles
- Strategic Value
  - SFAP Objectives (Technical and Functional)
  - Project EASI Objectives (Technical and Functional)

Each of the above sub-criteria was rated Low, Medium or High based on TAFIM rating recommendations. The summary questionnaire was then developed and filled out using these criteria and rating scales.

## Step 2

Summary questionnaires were distributed and responses gathered. The data was summarized and is presented in the following sections of this appendix.

## Step 3

The scoring methodology used in the summary assessment aggregates scores in all the sub-criteria into the major category level. Each rating for low, medium and high in a sub-criterion is assigned a 1, 2 or 3 respectively. The total number of points scored for each sub-criteria are then added within the associated major criterion and divided by the total points possible within that criterion.

The resulting division of total points scored in a major category divided by the number of points possible within that category is then stated in terms of a percentage so that the data points can be plotted.

## Step 4

The data points representing the responses are plotted on Cartesian planes using the following x/y axis combinations.

### X-Axis

Technology Evolution  
Strategic Value

### Y-Axis

Technical Quality  
Technical Quality

## Strategic Value/Tech. Evolution (Combined) Technical Quality

For the combined Strategic Value and Technical Evolution plot the two scores for each respective category were averaged together on an equally weighted basis.

It should be noted that because the minimum score for a given sub-criterion is 1, the minimum rating for any given major criterion is 1/3 or 33%.

### Step 5

After calculating the percentage scores, the data points were plotted on the summary templates. The associated plots were then analyzed for recommendations concerning the future use of current Title IV systems.

### Ratings

The following template was used to assess each of the current Title IV Systems against the criteria listed in the table where:

**Low:** Does not or seldom exhibits behavior described in criteria (for example: high number of failures, and low performance).

**Medium:** Meets, more often than not, behavior described in criteria.

**High:** Almost always exhibits behavior described in criteria (for example: low failures, excellent performance.)

| Campus Base System (CBS)  | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li><b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  | X   |        |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li><b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   | X   |        |      |
| <ul style="list-style-type: none"> <li><b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li><b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   | X   |        |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   | X   |        |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   | X   |        |      |



| Campus Base System (CBS)   | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  | X   |        |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. | X   |        |      |

## CBS Ratings Explanation

### Technical Quality

The CBS system rates low to medium for each of the three categories comprising technical quality. The system rates medium for robustness due to its maturity and its relatively stable data and user populations. The system rates low in maintainability mostly due to its somewhat dated VSAM file structure and the lack of logical data model or central data dictionary. Furthermore, the presence of several small PC systems means that some functionality, such as the receipt of FISAP data (through the Return Log System), is not tightly integrated with the main application. The same characteristics that contribute to its low maintainability ranking also lead to its low enhancement capability assessment.

### Technology Evolution

The CBS system rates low for each of the three categories comprising technical evolution. This is primarily due to the monolithic mainframe operating environment, VSAM file structure, and COBOL programming environment under which CBS runs. These technologies do not align with the direction that the technology market is moving, and do not allow for the easy accommodation of new technologies. The technical environment in which CBS operates would also be relatively difficult to migrate to the envisioned SFAP COE.

With regard to compliance with SFAP architecture principles, CBS does not incorporate logical system tiers to completely separate presentation, application, and data, thereby partially conflicting with architecture principle 15. It also does not document data using a common data dictionary, and is heavily batch-oriented in the way it processes information.

### Strategic Value

The CBS system rates low with respect to the categories comprising strategic value, mainly due to its lack of timely on-line access to information for its primary users, the Institutional Financial

Management Division (IFMD) of the Accounting and Financial Management Service (AFMS). Currently, the master file and other pertinent data is downloaded by a contractor and provided to IFMD via access to EDLAN. CBS also is not easily able to support World Wide Web-base access, or provide a single point of interface to the postsecondary education community.

| Central Database System(CDS)  | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |     | X      |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   | X   |        |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   | X   |        |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   | X   |        |      |
| <b>STRATEGIC VALUE (Continued)</b>  |     |        |      |

| Central Database System(CDS)   |  | Low | Medium | High |
|--|--|-----|--------|------|
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |  |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |  |     | X      |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |  | X   |        |      |

## CDS Ratings Explanation

### Technical Quality

CDS rates medium for robustness due to the maturity of its technology and its relatively stable data and user populations. Although the system uses the Composer CASE tool to generate code for the non-accounting portion of the system, the accounting portion of CDS uses the FARS package. The VSAM file structure and relatively dated nature of this package lowered the maintenance and enhancement ratings for CDS as a whole (also to a medium rating).

### Technology Evolution

CDS rates mostly medium in the technology evolution area, due to a mixture of up-to-date Composer-generated client/server and batch code used in the non-accounting portion of the system, and more dated VSAM and CICS-based code used in the accounting portion. While the Composer-generated pieces of CDS would not have too much difficulty moving to a COE-based architecture, the FARS accounting package would not be so easy to migrate.

The CDS was rated low in terms of its compliance to SFAP architecture principles. CDS does not meet many of the architecture principles defined by SFAP. It conflicts with architecture principles 8, Access to Information; 14, Database Design; 20, Object Oriented Design and Structure; and 21, Event Driven Processing.

### Strategic Value

The CDS system rates low with respect to the categories comprising strategic value, mainly due to its lack of on-line access and its heavily batch-oriented data processing. This limits other systems from getting timely access to updated information. Instead, users have to work with monthly snap-shots of the data. The subsystems within this system are dependent on the data from the central database as well as data from other subsystems. Also the extent to which the system supports Internet-based access and a single point of interface for all financial aid matters led it to score low in this category.

| Central Processing System (CPS)   | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  | X   |        |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   | X   |        |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |     | X      |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |     | X      |      |

| Central Processing System (CPS)  | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |     | X      |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

## CPS Ratings Explanation

### Technical Quality

The CPS system rates medium for robustness due to its development maturity and its use of well established mainframe technology and DB2 database components. CPS ranks low however in the maintainability and enhancements criteria based on its monolithic mainframe-based architecture, the existence of five different databases within the system, and the significant system resources that are required each year to perform the annual update cycle (due to changes in the FAFSA, or to implement requested enhancements).

### Technology Evolution

CPS rates low on the criteria that make up technology evolution. The largest contributing factor to the low ratings for system positioning and technology advances is its monolithic, batch-oriented architecture. This mainframe-based environment and multiple separate databases also conflicts with the SFAP architecture principle 10, data stewardship, which sets as a goal the easy sharing of data by stakeholders from a single access point, and architecture principle 15, business logic, which states that data, business, and presentation logic should be in clearly separates logical layers.

### Strategic Objective

CPS rates medium in the criteria for strategic value. The system scores in the medium range for all criteria in both the SFAP objectives and Project EASI sub-categories. With respect to technical requirements in the SFAP Objectives sub-category, the CPS requires minor modifications for Year 2000 compliance and should implement them in the 1999-2000 development cycle. With respect to meeting SFAP functional requirements to provide excellent customer service and a single point of contact, the CPS rates high due to its recent implementation of the FAFSA on the Web and other participant-oriented data provision and access enhancements. This CPS focus on the participant also makes it rank high in the Project

EASI criteria assessments. The focus on reaching out to the participant via a Web based application fits within the Project EASI vision.

| EDExpress   | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |     | X      |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li><b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |     | X      |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   | X   |        |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |     | X      |      |



| EDEExpress   | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |     | X      |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

## EDEExpress Ratings Explanation

### Technical Quality

EDEExpress received medium ratings in all the Technical Quality sub-categories. The system is written in a modern, highly modular language (Visual C++), and is constantly undergoing enhancement.

### Technology Evolution

EDEExpress received average scores for technology evolution. While the system does not employ Internet-related technologies, EDEExpress is moving to a 32-bit platform and is written using a popular and well supported object-oriented language.

### Strategic Value

Although EDEExpress is a small subsystem of CPS, it is an important Title IV systems interface component used by schools to facilitate communications, aid packaging and aid origination and is rated medium against the strategic functional criteria. EDEExpress is rated low for technical compliance with SFAP objectives since it does not make use of a World Wide Web-based interface or employ industry-wide standards for data exchange, but it rates medium with regard to Project EASI technical objectives because it is in substantial compliance with the *Project EASI/ED COE*.

| Federal Family Education Loan (FFEL)  | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  | X   |        |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   | X   |        |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   | X   |        |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   | X   |        |      |

| Federal Family Education Loan (FFEL)   | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  | X   |        |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. | X   |        |      |

## FFEL Ratings Explanation

### Technical Quality

FFEL technical quality generally rates low based on its reliance on dated IBM mainframe based IDMS database software. While FFEL is relatively robust from the point of view of its ability to perform without failure, IDMS is a network-based database system that is relatively difficult to maintain and this leads FFEL to be rated low for maintainability. With respect to its enhancement capability, FFEL is limited due to the monolithic architecture of the system, and relative difficulty of scaling and/or changing an IDMS-based database.

### Technology Evolution

FFEL rates low in the technology evolution category, again primarily due to its use of IDMS. While support from vendors exists, there is a gradually diminishing emphasis from them on this class of products. From the point of view of effectively accommodating new technologies, the FFEL system is hampered by its monolithic design and network database architecture. This would be particularly true of attempts to modernize the FFEL DBMS to a relational product.

With respect to agreement with SFAP's architecture principles, the FFEL system essentially maintains its own central data repository that shares information primarily through a batch interface. Additionally, the FFEL does not support large scale on-line transaction processing and as described above does not support relational database or object oriented technologies. These characteristics conflict with several SFAP architecture principles, namely Principle 8, Access to Information, Principle 10, Data Stewardship, Principle 20, Object Oriented Design and Principle 21, Event Driven Processing. Therefore, the FFEL system is rating low for the architecture principle category.

### Strategic Objective

The FFEL system rates low with respect to supporting both SFAP and Project EASI objectives. The primary reasons for a shortfall in meeting SFAP's technical objectives is the lack of a relational database structure and a lack of Web based electronic data interchange and interface technology. These same limitations are reflected in the assessment with respect to Project EASI. Project EASI envisions a greater sharing of data between ED user groups and requires more available data access and exchange. FFEL has several important functional features such as its management of defaulted debt. However, until the technical challenges of the system are overcome FFEL will have difficulty in effectively supporting such innovations as World Wide Web access or a single point of interface for the postsecondary education community.

| Loan Consolidation System (LCS)   | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |     | X      |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li><b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |     |        | X    |
| <ul style="list-style-type: none"> <li><b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |     | X      |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |     | X      |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |     | X      |      |

| Loan Consolidation System (LCS)  | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |     |        | X    |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

## LCS Ratings Explanation

### Technical Quality

The LOS and LCS systems rate medium for each of the three criteria of technical quality. The systems are relatively new with well structured and documented code. LCS and LOS use the same data model but different databases are maintained due to the volume of transactions processed. The data that they share is updated through an interface with CDS.

### Technology Evolution

Both the systems use up-to-date relational database technology and will easily accommodate new advances. LCS and LOS both use Powerbuilder to implement application subsystems, and employ a client-server based architecture. Therefore, both LCS and LOS rate high in the technological advancement criteria. Most of the technologies used in these systems adhere to the SFAP architecture principles.

### Strategic Value

Both the systems received good strategic value scores since they are substantially in compliance with the *Project EASI/ED COE* and are capable of easily integrating Web-based technology meeting SFAP objectives. The use of the UNIX operating system offers a more open approach to further system integration efforts.

| Loan Origination System (LOS)   | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |     | X      |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |     |        | X    |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |     | X      |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |     | X      |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |     | X      |      |

| Loan Origination System (LOS)  | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |     |        | X    |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

### LOS Ratings Explanation

See LCS ratings explanation.



| Loan Servicing System (LSS)   | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  | X   |        |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   | X   |        |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   | X   |        |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |     | X      |      |

| Loan Servicing System (LSS)  | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  | X   |        |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

## LSS Ratings Explanation

### Technical Quality

LSS generally rates low in the technical quality criteria with the exception of robustness, where it ranks medium. The medium rating for robustness stems from LSS's general performance although at times it has been characterized as slow. Maintenance and enhancement capability is rated low due to the fact that the SFAP does not own the system's source code, that the source code has been extensively modified over its lifetime, and that limited documentation of these modifications exists.

### Technology Evolution

LSS rated low in all criteria of the technology evolution sub-category. This was due to the fact that LSS employs VAX COBOL, the Rdb RDBMS, and the OpenVMS operating system, all running on DEC VAX hardware. All of these products are suffering from reducing vendor support, and Compaq/Digital will only continue to invest in the OpenVMS platform until 2001. LSS also scores low in compliance with SFAP architecture principles due to its conflict with many architecture principles such as database design, the use of CASE tools for managing code development, the use of object oriented technology and data stewardship and sharing.

### Strategic Value

The LSS system rates low for technical and medium for functional objectives in both the SFAP and Project EASI strategic value categories. The low technical rating is due to difficulty of enhancing LSS to provide the technology-enabled customer service focus that both SFAP's and Project EASI's visions require. The medium functional rating is due to the importance and significance of the LSS loan servicing database.

| Multiple Data Entry (MDE)   | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |     | X      |      |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |     | X      |      |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |     | X      |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |     | X      |      |

| Multiple Data Entry (MDE)  | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |     | X      |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

## MDE Ratings Explanation

### Technical Quality

The MDE received medium ratings in all the technical quality sub-categories. While the MDE environment is quite complicated, comprising a variety of different operating systems and hardware platforms, the MDE software is an integrated suite of COTS packages, with only some custom code.

### Technology Evolution

MDE uses advanced SUN Sparc , SUN operating system and Windows NT technology. It utilizes the DB2 and RRI database systems with other software such as SAS. The MDE technology base will easily accommodate advances. Most of the technologies used in these systems adhere to the SFAP architecture principles.

### Strategic Value

MDE received average scores since it is substantially in compliance with the *Project EASI/ED COE*, although its imaging capabilities are not at present integrated with other SFAP systems that involve document management.

| National Student Loan Data System (NSLDS)   |  | Low | Medium | High |
|---|--|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |  |     |        | X    |
| <ul style="list-style-type: none"> <li><b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |  |     | X      |      |
| <b>TECHNOLOGY EVOLUTION</b>   |  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |  | X   |        |      |
| <b>STRATEGIC VALUE</b>  |  |     |        |      |
| <ul style="list-style-type: none"> <li><b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |  |     | X      |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |  |     | X      |      |

| National Student Loan Data System (NSLDS)  | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  | X   |        |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

### NSLDS Ratings Explanation

The NSLDS system generally rated medium to high in all criteria except compatibility with architecture principles and with Project EASI related technical objectives. Ratings for each of the criteria sub-categories are described below.

#### Technical Quality

NSLDS generally rates medium to high for criteria in the Technical Quality sub-category. Its relatively straightforward processing and the technical maturity of its mainframe operating system and database applications contribute to its medium robustness rating. The use of Composer facilitates application code maintenance, the system being in certain respects self-documenting, and should allow for easier enhancements and changes, provided they are within the capabilities of the CASE tool. For this reason NSLDS is rated high in the maintainability area and medium in the enhancement area.

#### Technology Evolution

NSLDS achieves medium ratings for systems positioning and technology advances in this sub-category. The NSLDS use of Composer together with an established DB2 database position the system well for both future vendor support and for future technical advances.

However, with respect to the SFAP architecture principles the system rates low. NSLDS lacks an event driven processing environment, is monolithic in its architecture, and does not provide wide spread access to the large quantities of data that it maintains. NSLDS is also a database that functions both as an operational data store and as a tool for decision analysis. This conflicts with a SFAP principle to separate decision related data from operational data stores.

#### Strategic Value

Within the strategic value sub-category, NSLDS generally scores in the medium range. With respect to SFAP objectives, NSLDS is SFAP's largest current store of integrated Title IV information, and it is moving towards supporting Web-based access for students. However, from a technical perspective Project EASI envisions a more transaction oriented real-time interaction layer with standards-based interfaces to the ultimate source of data. Therefore, NSLDS was rated low in the Project EASI technical criterion and medium in the functional one.

| Pell Grant Recipient and Financial Management System (PGRMS)  |  | Low | Medium | High |
|---|--|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |  |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |  | X   |        |      |
| <b>TECHNOLOGY EVOLUTION</b>   |  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |  | X   |        |      |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |  | X   |        |      |
| <b>STRATEGIC VALUE</b>  |  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |  | X   |        |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |  | X   |        |      |



| Pell Grant Recipient and Financial Management System (PGRMS)   | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  | X   |        |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. | X   |        |      |

### PGRFMS Ratings Explanation

The PGRFMS system rates low in every criteria except robustness, where it rated medium. PGRFMS rated low mostly because of its dated monolithic mainframe environment with data residing in ISAM/VSAM files.

#### Technical Quality

For technical quality PGRFMS rates medium for robustness and low for maintainability and enhancements. This was due to the fact that PGRFMS is a relatively old but long running and mature system. The system rates low in maintainability and enhancement capability mostly due to its somewhat dated ISAM/VSAM file structure and the lack of logical data model or central data dictionary.

#### Technology Evolution

PGRFMS rates low for Technical Evolution across the board. Its systems positioning is low due to its ISAM/VSAM data file structure, which does not support future technology advances well. It had significant conflicts with SFAP architecture principles in the areas of on-line interaction, data sharing and database design. For these reasons it was rated low in both technology advances and architecture principles.

#### Strategic Value

PGRFMS rates low in all the SFAP and Project EASI strategic value categories. This is due to its dated technical environment and to the lack of functional integration with other ED systems as a whole.

| Postsecondary Education Participants System (PEPS)  | Low | Medium | High |
|---|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |     | X      |      |
| <ul style="list-style-type: none"> <li>• <b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |     |        | X    |
| <ul style="list-style-type: none"> <li>• <b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |     |        | X    |
| <b>TECHNOLOGY EVOLUTION</b>   |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |     |        | X    |
| <ul style="list-style-type: none"> <li>• <b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |     |        | X    |
| <ul style="list-style-type: none"> <li>• <b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |     |        | X    |
| <b>STRATEGIC VALUE</b>  |     |        |      |
| <ul style="list-style-type: none"> <li>• <b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |     |        | X    |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |     | X      |      |

| Postsecondary Education Participants System (PEPS)   | Low | Medium | High |
|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |     |        | X    |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |     | X      |      |

### PEPS Ratings Explanation

The PEPS system generally rated high in most criteria. This was due primarily to PEPS use of Oracle client-server technology. Ratings for each of the criteria sub-categories are described below.

#### Technical Quality

PEPS rates high for maintainability due its use of the Oracle DBMS and Oracle forms user applications developed using the Designer/2000 CASE tool. The system rates medium for both robustness and enhancement capability, due to the reasonable maturity of Oracle and Hewlett Packard client/server technology, but recognizing the performance and scalability limitations of Oracle Forms.

#### Technology Evolution

PEPS rates high in all criteria related to technology evolution. Its Oracle client-server technology implemented on an open system HP UNIX processor positions the system well with respect to future integration efforts. Additionally, due to its open systems structure and client-server architecture it should accommodate technology advancements well. PEPS also ranked well in its general agreement with SFAP architecture principles. This was due again to its relational client server database implementation.

#### Strategic Value

PEPS rates high with respect to both SFAP and Project EASI strategic value technical objectives. PEPS is a modern client-server based system implemented in an open systems environment. From the point of view of functional objectives, PEPS is rated medium, in that it has the capability to support Web-based access to information, and could act as a centralized source of information for the postsecondary education on matters relating to Title IV program management and oversight.

| Title IV Wide Area Network (TIVWAN)   |  | Low | Medium | High |
|---|--|-----|--------|------|
| <b>TECHNICAL QUALITY</b>  |  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Robustness:</b> The degree to which the system performs without failure and is continuously available, as justified by business needs. The measure to which the availability, performance, accessibility, and reliability of the system can be controlled and managed by ED.</li> </ul> |  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Maintainability:</b> The degree to which the system is easy to maintain, encompasses structured code, provides sufficient program contents and follows well defined data definitions.</li> </ul>  |  | X   |        |      |
| <ul style="list-style-type: none"> <li><b>Enhancements:</b> The degree to which the system is scalable and can accommodate improvements without introducing additional technical complexity and or significant cost and still deliver acceptable performance.</li> </ul>  |  | X   |        |      |
| <b>TECHNOLOGY EVOLUTION</b>   |  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Systems Positioning:</b> The degree to which technologies comprising the current system's architecture are based on standards that are widely accepted and followed by information technology vendors.</li> </ul>   |  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Technology Advances:</b> The degree to which the current system can effectively accommodate new technologies.</li> </ul>  |  |     | X      |      |
| <ul style="list-style-type: none"> <li><b>Architecture Principles:</b> The degree which the current system adheres to the architecture principles as defined in the SFAP Architecture Principles document.</li> </ul>   |  | X   |        |      |
| <b>STRATEGIC VALUE</b>  |  |     |        |      |
| <ul style="list-style-type: none"> <li><b>SFAP Objectives:</b> The degree to which the current system supports the strategic objectives of ED as defined in the U.S. Department of Education Strategic Plan document.</li> </ul>  |  |     |        |      |
| <u>Technical</u> – Year 2000 compliant, supports World Wide Web development, and meets industry wide standards for data exchange.   |  | X   |        |      |
| <u>Functional</u> – provides users with a single point of contact on all matters of financial aid. Emphasizes customer service in all aspects of operations. Facilitates additional interagency coordination. Supports innovation in the delivery of postsecondary education.   |  |     | X      |      |

| Title IV Wide Area Network (TIVWAN)  |  | Low | Medium | High |
|--|--|-----|--------|------|
| <b>STRATEGIC VALUE</b> <i>(Continued)</i>  |  |     |        |      |
| <ul style="list-style-type: none"> <li><b>Project EASI:</b> The degree to which the current system supports the Project EASI objectives as defined in the Project EASI/ED Concept Document.</li> </ul>   |  |     |        |      |
| <u>Technical</u> – The system complies with the technical environment described in the Project EASI Common Operating Environment and is model based in its design and construction.  |  | X   |        |      |
| <u>Functional</u> – The system is customer focused. Supports a single point of interface with the postsecondary education community. Streamlines and improves the accessibility of processes and data associated with postsecondary education. Reduces the cost associated with the delivery and management of postsecondary education services. |  |     | X      |      |

### TIVWAN Ratings Explanation

TIVWAN was reviewed only in the context of its mainframe-based applications for participant management, billing, and invoicing. The actual WAN was not reviewed.

#### Technical Quality

TIVWAN rated medium in robustness since it employs mature technology, providing reliable services without major failures. It scored low on maintainability and enhancement primarily because of its relatively inflexible monolithic custom COBOL developed applications.

#### Technology Evolution

TIVWAN was rated medium for both systems positioning and technology advances, since the system has been able to support management of the communication needs of SFAP, and vendor support for the system is readily available. However the move of SFAP to a Virtual Private Network (VPN) environment will be a technical advance that the current TIVWAN system will not be able to accommodate. TIVWAN was rated low in its adherence to SFAP architecture principles, because the architecture principles emphasize the concept of an Internet/Intranet-based communications architecture, not one built around a dedicated WAN.

#### Strategic Value

Functionally, TIVWAN was rated medium in its support of both SFAP and Project EASI objectives due to its provision of a dedicated communication mechanism to enable postsecondary education community members to communicate with ED. However, it was rated low in the technical areas for both SFAP and Project EASI, because they both envision the widespread use of Internet technology (whether through intranets, extranets, or VPNs) to facilitate easily accessible communication nationwide.

## APPENDIX E REFERENCES

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This Appendix cites the references used for the *Baseline Characterization Document*.

### Project EASI/ED References

- US Department of Education, Project EASI/ED Application Services Definition Document (ASDD): Subsystem and Interface Definition (SID), Version 2.0, 1998.
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